

Exhibit A

Steven M. Bellovin

Percy K. and Vida L.W. Professor of Computer Science

smb at cs.columbia.edu
<http://www.cs.columbia.edu/~smb>

Education

1982 Ph.D., University of North Carolina at Chapel Hill. Dissertation: *Verifiably Correct Code Generation Using Predicate Transformers*; advisor: David L. Parnas.

1977 M.S., University of North Carolina at Chapel Hill.

1972 B.A., Columbia University.

Employment

2014–now Percy K. and Vida L.W. Professor of Computer Science, Columbia University.

2005–2014 Professor of Computer Science, Columbia University.

2012–2013 Chief Technologist, Federal Trade Commission

2002–2004 Adjunct Professor of Computer Science, University of Pennsylvania.

2005–2012 AT&T, consultant

1998–2004 AT&T Fellow, AT&T Labs—Research.

1987–1998 Distinguished Member of the Technical Staff, AT&T Bell Laboratories and AT&T Labs—Research.

1982–1987 Member of the Technical Staff, AT&T Bell Laboratories.

1977–1978 Instructor, Dept. of Computer Science, University of North Carolina at Chapel Hill.

Honors

2014 Elected to the Cybersecurity Hall of Fame

2006 Received the 2007 NIST/NSA National Computer Systems Security Award

2001 Elected to the National Academy of Engineering.

1998 Named an AT&T Fellow.

1995 Received the Usenix Lifetime Achievement Award (“The Flame”), along with Tom Truscott and Jim Ellis, for our role in creating Usenet.

Books and Chapters

- Salvatore Stolfo, Steven M. Bellovin, Angelos D. Keromytis, Sara Sinclair, Sean Smith, and Shlomo HersHKop, editors. *Insider Attack and Cyber Security: Beyond the Hacker (Advances in Information Security)*. Springer, 2008.
- Seymour E. Goodman and Herbert S. Lin, editors. *Toward a Safer and More Secure Cyberspace*. National Academy Press, 2007.
- Stephen T. Kent and Lynette I. Millett, editors. *Who Goes There? Authentication Through the Lens of Privacy*. National Academies Press, 2003.
- John L. Hennessy, David A. Patterson, and Herbert S. Lin, editors. *Information Technology for Counterterrorism: Immediate Actions and Future Possibilities*. National Academies Press, 2003.
- William R. Cheswick, Steven M. Bellovin, and Aviel D. Rubin. *Firewalls and Internet Security; Repelling the Wily Hacker*. Addison-Wesley, Reading, MA, second edition, 2003.
- *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. National Academies Press, 2002.
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- Fred B. Schneider, editor. *Trust in Cyberspace*. National Academy Press, 1999.
- Network security issues. In Peter Denning and Dorothy Denning, editors, *Internet Besieged: Countering Cyberspace Scofflaws*. ACM Press, 1997.
- Network security issues. In A. Tucker, editor, *CRC Computer Science and Engineering Handbook*. CRC Press, 1996.
- Security and software engineering. In B. Krishnamurthy, editor, *Practical Reusable UNIX Software*. John Wiley & Sons, 1995.
- William R. Cheswick and Steven M. Bellovin. *Firewalls and Internet Security: Repelling the Wily Hacker*. Addison-Wesley, Reading, MA, first edition, 1994.

Papers and Articles

- Steven M. Bellovin, Matt Blaze, and Susan Landau. Comments on proposed remote search rules, October 2014.
- Steven M. Bellovin. The economics of cyberwar. Technical Report CUCS-010-14, Department of Computer Science, Columbia University, April 2014. Presented at the Institute for New Economic Thinking's *Human After All*.

- Steven M. Bellovin, Matt Blaze, Sandy Clark, and Susan Landau. Lawful hacking: Using existing vulnerabilities for wiretapping on the Internet. *Northwestern Journal of Technology & Intellectual Property*, 12(1), 2014.
- Steven M. Bellovin, Renée M. Hutchins, Tony Jebara, and Sebastian Zimmeck. When enough is enough: Location tracking, mosaic theory, and machine learning. *NYU Journal of Law and Liberty*, 8(2):555–628, 2014.
- Sebastian Zimmeck and Steven M. Bellovin. Privee: An architecture for automatically analyzing web privacy policies. In *23rd USENIX Security Symposium (USENIX Security 14)*, pages 1–16, San Diego, CA, August 2014. USENIX Association.
- Steven M. Bellovin. Position paper: Security and simplicity. In *W3C/IAB Workshop on Strengthening the Internet Against Pervasive Monitoring (STRINT)*, March 2014.
- Binh Vo and Steven Bellovin. Anonymous publish-subscribe systems. In *SECURECOMM*, Beijing, September 2014.
- Vasilis Pappas, Fernando Krell, Binh Vo, Vlad Kolesnimov, Tal Malkin, Seung Geol Choi, Wesley George, Angelos Keromytis, and Steven M. Bellovin. Blind seer: A scalable private DBMS. In *IEEE Symposium on Security and Privacy*, May 2014.
- Steven M. Bellovin. Mysterious checks from Mauborgne to Fabyan. Technical Report CUCS-012-14, Department of Computer Science, Columbia University, April 2014. A later version will appear in *Cryptologia*.
- Steven M. Bellovin. Vernam, Mauborgne, and Friedman: The one-time pad and the index of coincidence. Technical Report CUCS-014-14, Department of Computer Science, Columbia University, May 2014.
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- Steven M Bellovin. Dr. Strangecode. *IEEE Security & Privacy*, 12(3), May–June 2014.
- Steven M. Bellovin. Submission to the Privacy and Civil Liberties Oversight Board: Technical issues raised by the Section 215 and Section 702 surveillance programs, July 2013.
- Steven M. Bellovin, Matt Blaze, Sandy Clark, and Susan Landau. Going bright: Wiretapping without weakening communications infrastructure. *IEEE Security & Privacy*, 11(1):62–72, January–February 2013.

- Steven M. Bellovin. Why healthcare.gov has so many problems. *CNN.com*, October 15 2013.
- Steven M. Bellovin. Military cybersomethings. *IEEE Security & Privacy*, 11(3):88, May–June 2013.
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- Steven M. Bellovin, Scott O. Bradner, Whitfield Diffie, Susan Landau, and Jennifer Rexford. Can it really work? Problems with extending EINSTEIN 3 to critical infrastructure. *National Security Journal*, 3, 2012.
- Carl Landwehr, Dan Boneh, John Mitchell, Steven M. Bellovin, Susan Landau, and Mike Lesk. Privacy and cybersecurity: The next 100 years. *Proceedings of the IEEE*, PP(99):1–15, 2012.
- Maritza Johnson, Serge Egelman, and Steven M. Bellovin. Facebook and privacy: It’s complicated. In *Symposium On Usable Privacy and Security (SOUPS)*, July 2012.
- Michelle Madejski, Maritza Johnson, and Steven M. Bellovin. A study of privacy setting errors in an online social network. In *Proceedings of SESOC 2012*, 2012.
- Mariana Raykova, Hang Zhao, and Steven M. Bellovin. Privacy enhanced access control for outsourced data sharing. In *Financial Cryptography and Data Security*, March 2012.
- Mariana Raykova, Ang Cui, Binh Vo, Bin Liu, Tal Malkin, Steven M. Bellovin, and Salvatore J. Stolfo. Usable secure private search. *IEEE Security & Privacy*, 10(5), September–October 2012.
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- Steven M. Bellovin. Fighting the last war. *IEEE Security & Privacy*, 10(3), May–June 2012.
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- Maritza L. Johnson, Steven M. Bellovin, and Angelos D. Keromytis. Computer security research with human subjects: Risks, benefits and informed consent. In *Financial Cryptography and Data Security*, Lecture Notes in Computer Science. Springer Berlin / Heidelberg, 2011.

- Michelle Madejski, Maritza Johnson, and Steven M. Bellovin. The failure of online social network privacy settings. Technical Report CUCS-010-11, Department of Computer Science, Columbia University, February 2011.
- Sal Stolfo, Steven M. Bellovin, and David Evans. Measuring security. *IEEE Security & Privacy*, 9(3):88, May–June 2011.
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- Steven M. Bellovin. Frank Miller: Inventor of the one-time pad. Technical Report CUCS-009-11, Department of Computer Science, Columbia University, March 2011. A revised version appeared in *Cryptologia* 35(3), July 2011.
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- Shreyas Srivatsan, Maritza Johnson, and Steven M. Bellovin. Simple-VPN: Simple IPsec configuration. Technical Report CUCS-020-10, Department of Computer Science, Columbia University, July 2010.
- Elli Androulaki, Binh Vo, and Steven M. Bellovin. A real-world identity management system with master secret revocation. Technical Report CUCS-008-10, Department of Computer Science, Columbia University, April 2010.
- Elli Androulaki and Steven M. Bellovin. A secure and privacy-preserving targeted ad-system. In *Proceedings of the 1st Workshop on Real-Life Cryptographic Protocols and Standardization*, January 2010.

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- Elli Androulaki and Steven M. Bellovin. A secure and privacy-preserving targeted ad-system. Technical Report CUCS-044-09, Department of Computer Science, Columbia University, October 2009. A revised version will appear at the 1st Workshop on Real-Life Cryptographic Protocols and Standardization.
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- Elli Androulaki, Mariana Raykova, Angelos Stavrou, and Steven M. Bellovin. Opentor: Anonymity as a commodity service. Technical Report CUCS-031-07, Department of Computer Science, Columbia University, September 2007.
- Elli Androulaki, Seung Geol Choi, Steven M. Bellovin, and Tal Malkin. Reputation systems for anonymous networks. Technical Report CUCS-029-07, Department of Computer Science, Columbia University, September 2007.

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- Steven M. Bellovin and Eric K. Rescorla. Deploying a new hash algorithm. In *Proceedings of NDSS ’06*, 2006.
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Major Positions

2013–2015	Member, National Research Council study committee on FAA Next Generation Air Traffic Control System
2012–now	Member, National Research Council study committee on Cybersecurity Foundations
2010–now	Member, Computer Science and Telecommunications Board of the National Academies
2009–2012	Member, Technical Guidelines Development Committee of the Elections Assistance Commission
2008	Co-chair, Applied Cryptography and Network Security (ACNS)
2006	Chair, Steps Towards Reducing Unwanted Traffic in the Internet (SRUTI)
2005–now	Member, Department of Homeland Security Science and Technology Advisory Committee
2004–2007	Member, National Research Council study committee on cybersecurity research needs.
2002–2004	Member, ICANN DNS Security and Stability Advisory Committee.
2002–2004	Security Area co-director, Internet Engineering Task Force (IETF).
2002	Chair, program committee, IEEE Symposium on Security and Privacy.
2002	Member, Information Technology sub-committee, National Research Council study committee on science and technology against terrorism.
2001–2003	Member, ACM Advisory Committee on Security and Privacy.
2001	Vice-chair, program committee, IEEE Symposium on Security and Privacy.
2001–2003	Member, National Research Council study committee on authentication technologies and their privacy implications.
2000–2002	Chair, IETF ITRACE working group.
2000	Co-chair, Usenix Security Symposium.
1999–2002	IETF representative, ICANN Protocol Supporting Organization
1999–now	Co-chair, IETF SPIRITS working group.
1997–2001	Co-chair, IETF PINT working group.
1996–1998	Member, National Research Council study committee on information systems trustworthiness.

1996–2002 Member, Internet Architecture Board.

1996 Co-chair, Usenix Security Symposium.

1993–1995 Member, IETF IPng Directorate.

U.S. Patents

- 8,798,614 Enhanced communication service for predicting and handling communication interruption
- 8,676,916 Method and Apparatus for Connection to Virtual Private Networks for Secure Transactions
- 8,239,531 Method and Apparatus for Connection to Virtual Private Networks for Secure Transactions
- 8,145,793 System and Method for Distributed Content Transformation
- 8,107,479 Method and System for Telephony and High Speed Data Access on a Broadband Access Network
- 8,037,167 Method for Detecting Hosts behind Network Address Translators
- 7,907,517 Routing Protocols with Predicted Outage Notification
- 7,756,008 Routing Protocols with Predicted Outage Notification
- 7,676,224 Enhanced Communication Service for Predicting and Handling Communication Interruption (2010).
- 7,558,970 Full-Text Privacy-enhanced searches using encryption
- 7,227,843 Method for reducing congestion in packet-switched networks (2007).
- 7,051,365 Method and apparatus for a distributed firewall (2006).
- 7,035,410 Method and apparatus for enhanced security in a broadband telephony network (2006).
- 6,870,845 Method for providing privacy by network address translation (2005).
- 6,665,299 Method and system for telephony and high speed data access on a broadband access network (2003).
- 5,958,052 Method and apparatus for restricting access to private information in domain name systems by filtering information (1999).
- 5,870,557 Method for determining and reporting a level of network activity on a communications network using a routing analyzer and advisor (1999).

5,805,820 Method and apparatus for restricting access to private information in domain name systems by redirecting query requests (1998).

5,440,635 Cryptographic protocol for remote authentication (1995).

5,241,599 Cryptographic protocol for secure communications (1993).

Numerous other patent applications are pending.